Event Builder + Level 3 for ACEs

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Outline

- Introduction to the Hardware Event Builder

- Introduction to Level 3 Trigger Hardware

- Level 3 Display

- EVB/L3 ACE Control Panel

- Trouble-shooting guide

- Our helpful web-page

- The EVB/Level 3 Team

- Tour of the hardware

The Event Builder

- When a L2 trigger accept is issued, the Front End (FE) crates write event fragments to VME Readout Buffers (VRB)

- 22 EVB Scanner CPUs (SCPU), transfer fragments belonging to the same event to the Level 3 Filter Farm

- EVB Proxy coordinates the data flow and communicates the with RunControl
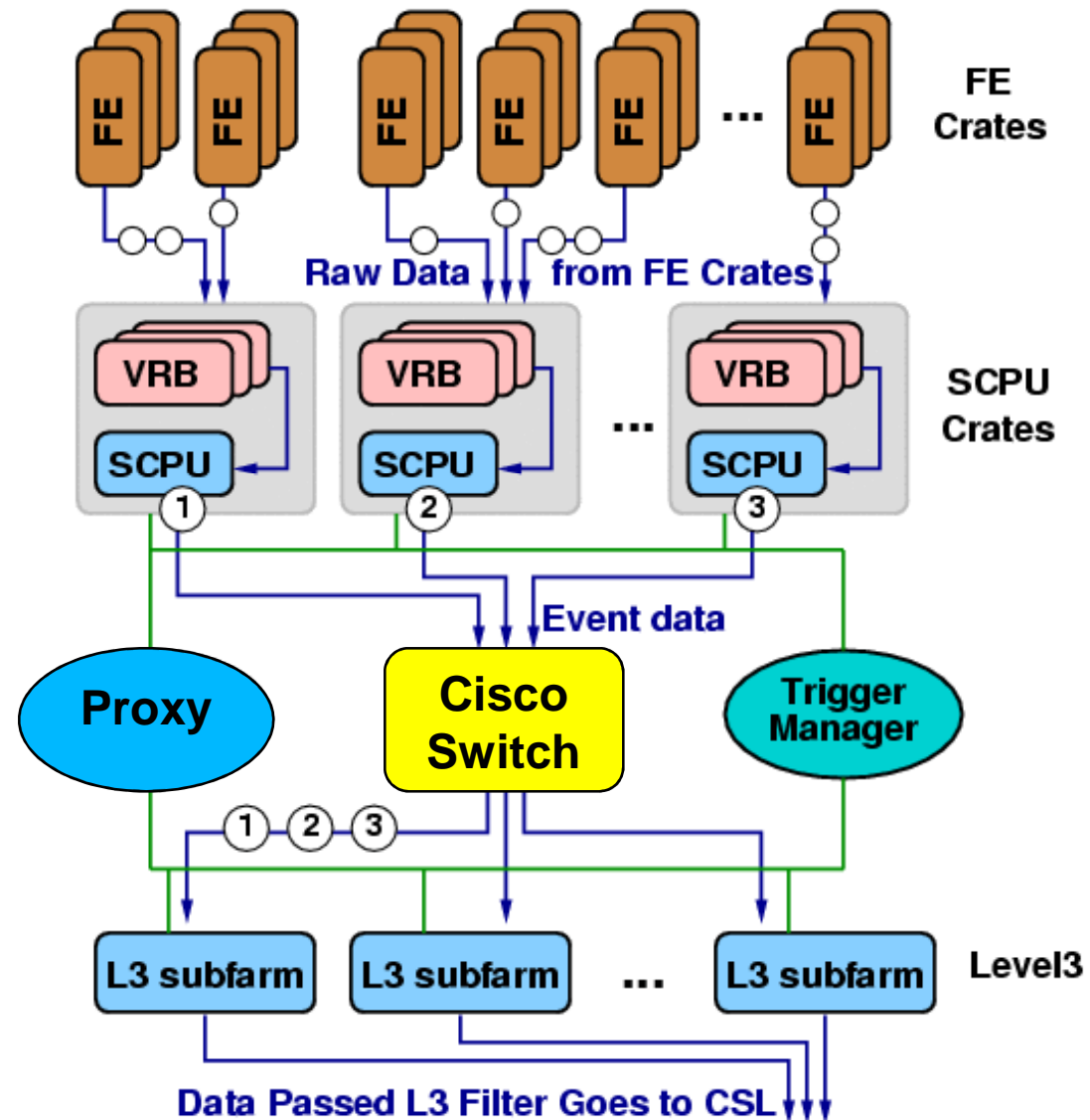
Level 3 Trigger Hardware

- The *Level 3 filter farm* is arranged into 18 independent sub-farms *~20 nodes each*

- *Converters* receive events from EventBuilder, and distribute to Processor nodes

- *Processors* run Reformatter and Filter code

- Filter does offline-type reconstruction and makes Level 3 trigger decision

- Output nodes collect events that pass, send to Consumer Server Logger (CSL)

- L3Proxy controls farm and communication with RunControl
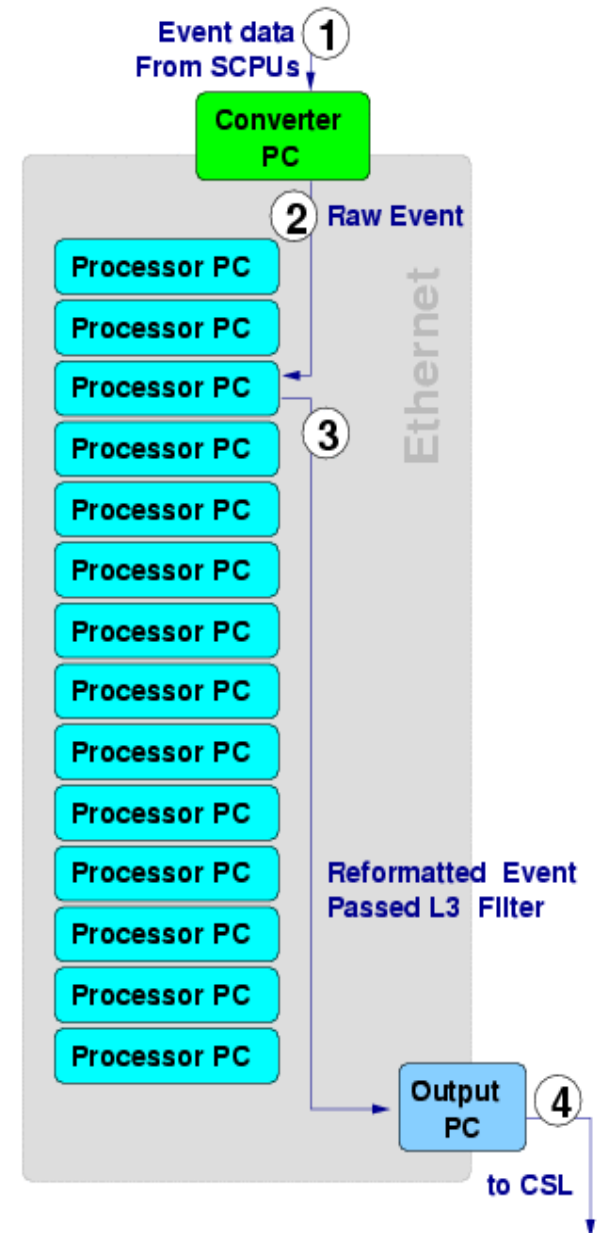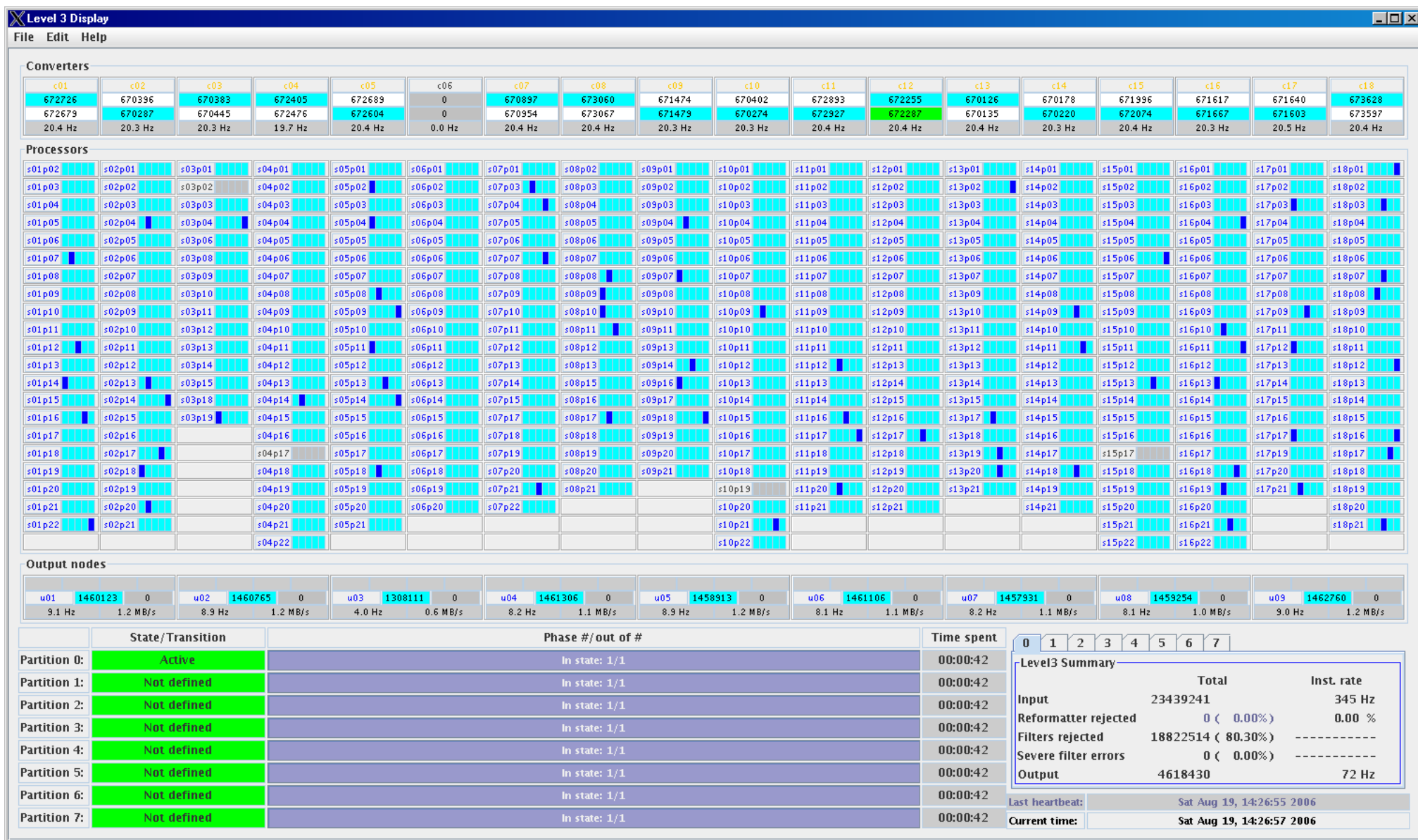
Topics Not Covered Here

Software Event Builder

- ➢ Bypasses EVB and L3

- ➢ Used for calibrations and tests; has limited bandwidth

- ➢ Responsibility of DAQ group
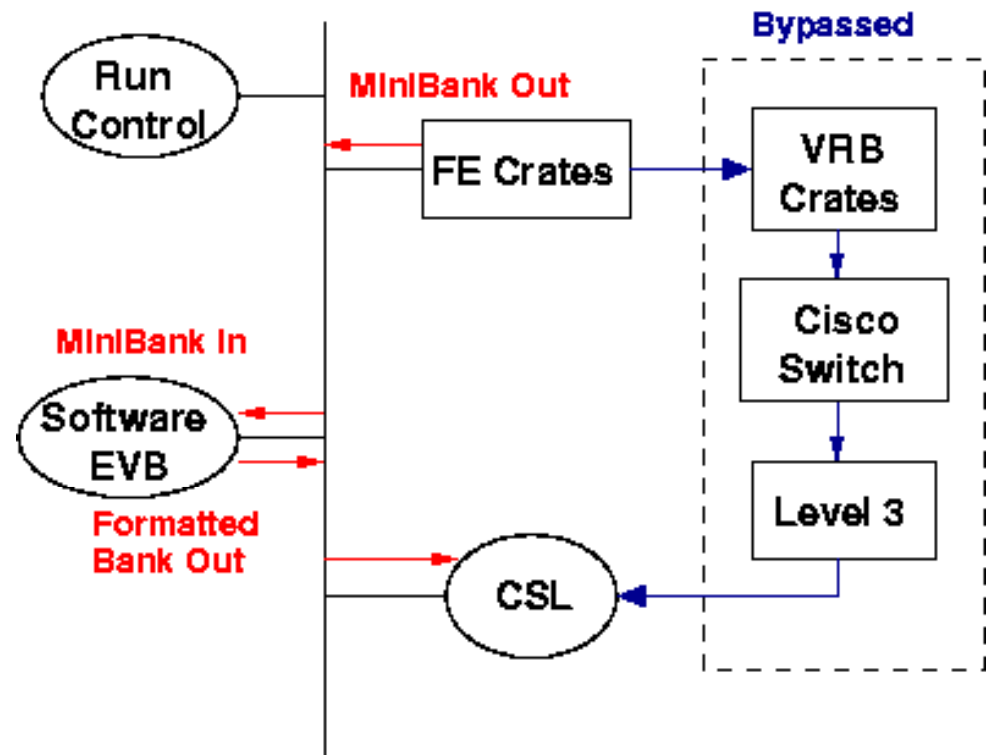
Level3 Manager (l3m in RunControl)

- ➢ Determines calibration files and executables for L3Filter

- ➢ Independent of L3 hardware

The Level 3 Display

Start it from DAQMon

Level3 Display In Action
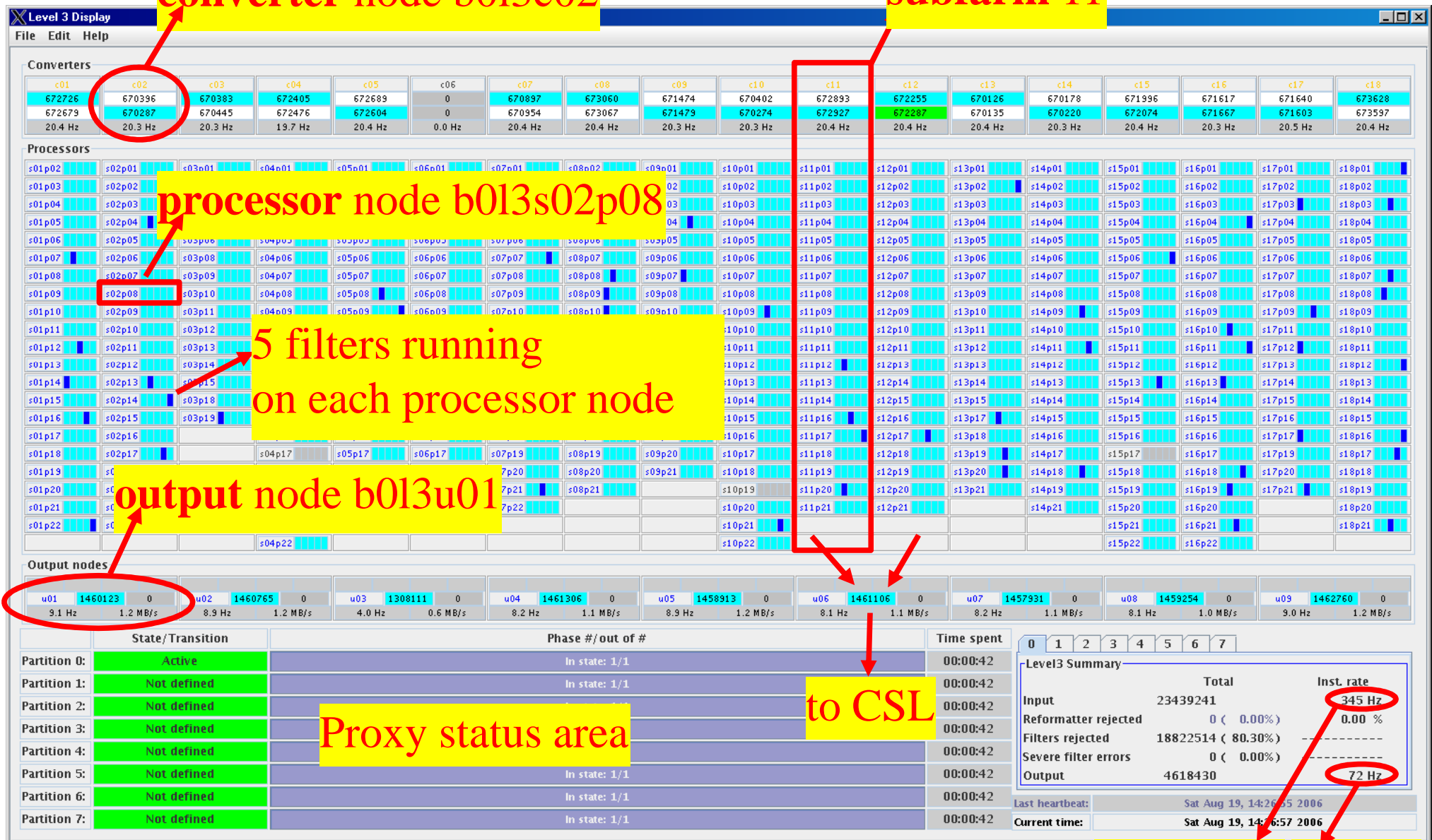
The EVB/L3 ACE Control Panel

To start: > Evb2Control
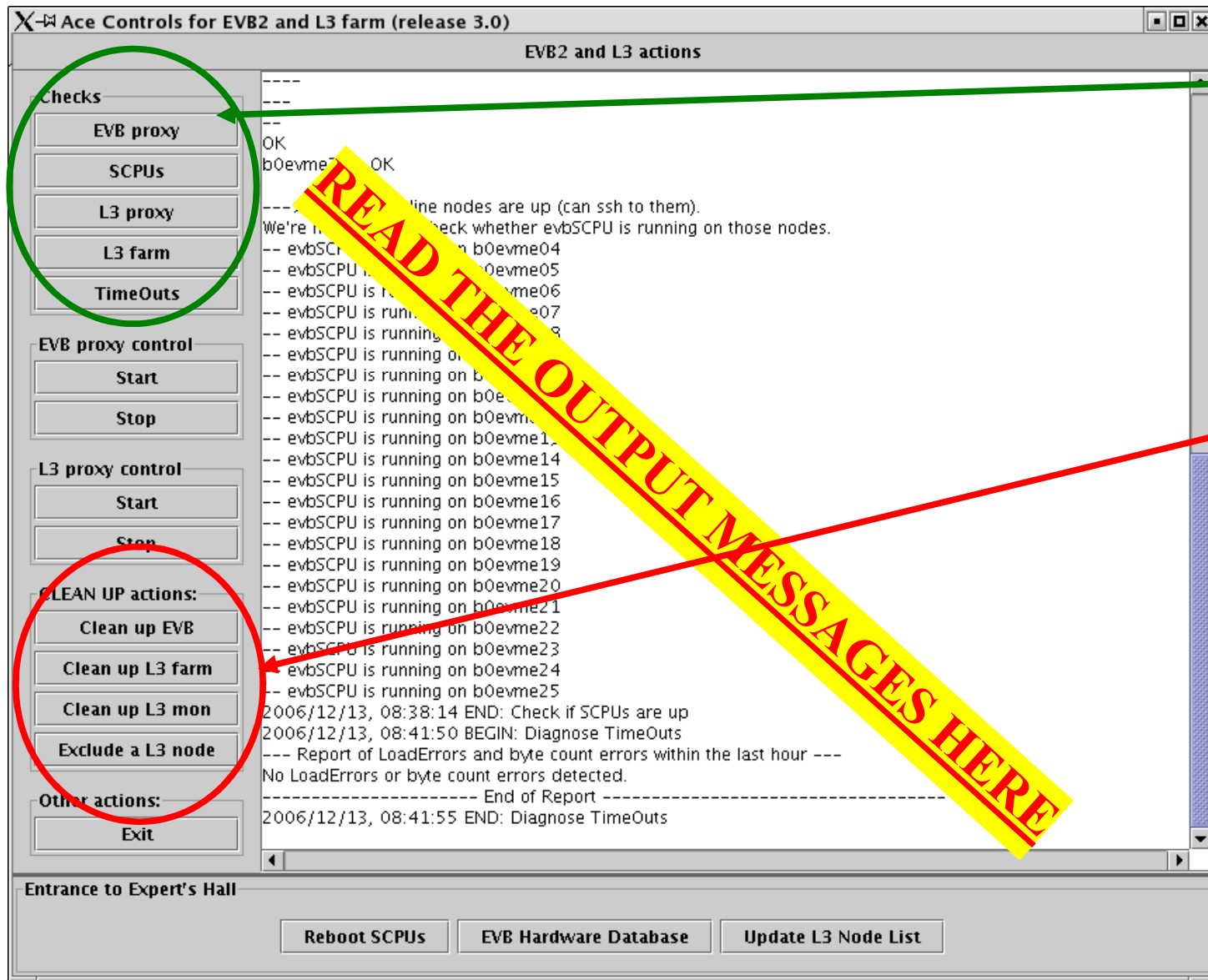
- ***Checks*** are safe – can do any time

- ***Clean-up*** can only be done in **'Start'** state

Golden Rules for Smooth Operation

- If in doubt, *page the Expert*

- Always RESET after ENDing or ABORTing a run

- Do not *shepherd* EVB or L3

    - EVB and L3 must be synchronized with other clients

- Read our webpage – we have instructions for common problems that may occur

    http://www-cdfonline.fnal.gov/ops/evbl3shift/evbl3shift.html

- Contact us if you have questions

Problems You May Encounter

- 'Busy Time-Out' or 'TM2 Events Pending TO'

- EVB fails to respond to a transition

- Level 3 fails a transition

- 'Level3 Relay failure'

- Level3 Reformatter errors

- All these (and more) are covered on our webpage

- If a problem develops with EVB or Level3, please consult the webpage to seek a solution

General Approach to EVB Problems

- Before doing EVB cleanup, always 'check SCPUs' and 'check Proxy'

- Read the output carefully

- If the checks do not indicate a problem, then EVB cleanup *WILL NOT HELP!*

- A pop-up window will ask you for confirmation before cleanup *(sometimes hard to see)*

- Careful: cleanups can fail! Read output and follow with checks again to make sure it worked

The EVB/Level3 ACE Webpage

Linked from the DAQ ACE Help-Page

Hardware Event Builder and Level 3 Farm

RULE 0: All the L3/EVB pages should go to the DAQ group
RULE 1 - If all else fails, go to START, Cleanup L3, Cleanup EVB. Still problems? Page DAQ
RULE 2 - Go to START before: new run including EVB/L3 or "Cleanup EVB" or "Cleanup L3"

| Getting Started | Troubleshooting | Documents | Contact |

- How to start the Ace Control Panel for EVB/L3

Contains useful information and trouble-shooting guide